

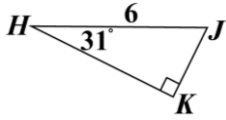
Creating Trigonometric Ratios

Once you are able to identify the three sides (opp, adj & hyp) for each angle of focus, the next step is being able to create the three trigonometric ratios. The most popular way to remember the three ratios is SOHCAHTOA:

**SOH:**  $\sin(\text{angle}) = \frac{\text{opp}}{\text{hyp}}$     **CAH:**  $\cos(\text{angle}) = \frac{\text{adj}}{\text{hyp}}$     **TOA:**  $\tan(\text{angle}) = \frac{\text{opp}}{\text{adj}}$

To create your ratios, start by identifying the opp, adj & hyp sides for the angle of focus. Then, rewrite the trig ratio with the angle letter, and segment names. Finally, substitute the values that you know. This gives you the three trig ratios for your angle of focus. Today, you will do this twice - once for each possible focus angle.

**EXAMPLE**



To create the three trig ratios, start with SOHCAHTOA, which tells you the setup:

**SOH:**  $\sin(\text{angle}) = \frac{\text{opp}}{\text{hyp}}$     **CAH:**  $\cos(\text{angle}) = \frac{\text{adj}}{\text{hyp}}$     **TOA:**  $\tan(\text{angle}) = \frac{\text{opp}}{\text{adj}}$

Then, plug in the information that you know.

Focus on $\angle H$		
$m\angle H = 31^\circ$	$\overline{JK}$	opp
$m\angle J = 59^\circ$	$\overline{HK}$	Adj
$m\angle K = 90^\circ$	$HJ = 6$	Hyp

Focus on $\angle J$		
$m\angle H = 31^\circ$	$\overline{JK}$	Adj
$m\angle J = 59^\circ$	$\overline{HK}$	opp
$m\angle K = 90^\circ$	$HJ = 6$	Hyp

If you're using H as your angle, then opp=JK, adj=HK & hyp=HJ.

**SOH**

$\sin H \leftarrow \text{angle} = \frac{JK \leftarrow \text{opp}}{HJ \leftarrow \text{hyp}}$

**CAH**

$\cos H \leftarrow \text{angle} = \frac{HK \leftarrow \text{adj}}{HJ \leftarrow \text{hyp}}$

**TOA**

$\tan H \leftarrow \text{angle} = \frac{JK \leftarrow \text{opp}}{HK \leftarrow \text{adj}}$

$\sin H = \frac{JK}{HJ}$

$\cos H = \frac{HK}{HJ}$

$\tan H = \frac{JK}{HK}$

$\sin(31) = \frac{JK}{6}$

$\cos(31) = \frac{HK}{6}$

$\tan(31) = \frac{JK}{HK}$

If you're using J as your angle, then opp=JK, adj=HK & hyp=HJ.

**SOH**

$\sin J \leftarrow \text{angle} = \frac{HK \leftarrow \text{opp}}{HJ \leftarrow \text{hyp}}$

**CAH**

$\cos J \leftarrow \text{angle} = \frac{JK \leftarrow \text{adj}}{HJ \leftarrow \text{hyp}}$

**TOA**

$\tan J \leftarrow \text{angle} = \frac{HK \leftarrow \text{opp}}{JK \leftarrow \text{adj}}$

$\sin J = \frac{HK}{HJ}$

$\cos J = \frac{JK}{HJ}$

$\tan J = \frac{HK}{JK}$

$\sin(59) = \frac{HK}{6}$

$\cos(59) = \frac{JK}{6}$

$\tan(59) = \frac{HK}{JK}$

Create the three trig ratios for each triangle, using each possible focus angle. Then, plug in the known information. Circle any trig ratios that have 2 known parts and 1 unknown (2 numbers and 1 letter/name).

1.

Focus on $\angle B$		
$m\angle B = 26^\circ$	$AC = 2$	Opp
$m\angle A = 64^\circ$	$\overline{BC}$	Adj
$m\angle C = 90^\circ$	$\overline{AB}$	Hyp

Focus on $\angle A$		
$m\angle B = 26^\circ$	$AC = 2$	Adj
$m\angle A = 64^\circ$	$\overline{BC}$	Opp
$m\angle C = 90^\circ$	$\overline{AB}$	Hyp

$\sin = \frac{\quad}{\quad}$      $\cos = \frac{\quad}{\quad}$      $\tan = \frac{\quad}{\quad}$

$\sin = \frac{\quad}{\quad}$      $\cos = \frac{\quad}{\quad}$      $\tan = \frac{\quad}{\quad}$

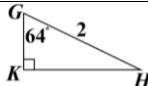
2.

Focus on $\angle F$		
$m\angle F = 26^\circ$	$\overline{DE}$	Opp
$m\angle D = 64^\circ$	$EF = 2$	Adj
$m\angle E = 90^\circ$	$\overline{DF}$	Hyp

Focus on $\angle D$		
$m\angle F = 26^\circ$	$\overline{DE}$	Adj
$m\angle D = 64^\circ$	$EF = 2$	Opp
$m\angle E = 90^\circ$	$\overline{DF}$	Hyp

$\sin = \frac{\quad}{\quad}$      $\cos = \frac{\quad}{\quad}$      $\tan = \frac{\quad}{\quad}$

$\sin = \frac{\quad}{\quad}$      $\cos = \frac{\quad}{\quad}$      $\tan = \frac{\quad}{\quad}$

3. 

Focus on $\angle G$	
$m\angle H = 26^\circ$	$\overline{GK}$
$m\angle G = 64^\circ$	$\overline{HK}$
$m\angle K = 90^\circ$	$\overline{GH} = 2$

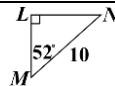
Adj Opp Hyp

Focus on $\angle H$	
$m\angle H = 26^\circ$	$\overline{GK}$
$m\angle G = 64^\circ$	$\overline{HK}$
$m\angle K = 90^\circ$	$\overline{GH} = 2$

Opp Adj Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

4. 

Focus on $\angle N$	
$m\angle N = 38^\circ$	$\overline{LM}$
$m\angle M = 52^\circ$	$\overline{LN}$
$m\angle L = 90^\circ$	$\overline{MN} = 10$

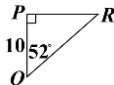
Opp Adj Hyp

Focus on $\angle M$	
$m\angle N = 38^\circ$	$\overline{LM}$
$m\angle M = 52^\circ$	$\overline{LN}$
$m\angle L = 90^\circ$	$\overline{MN} = 10$

Adj Opp Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

5. 

Focus on $\angle R$	
$m\angle R = 38^\circ$	$\overline{PQ} = 10$
$m\angle Q = 52^\circ$	$\overline{PR}$
$m\angle P = 90^\circ$	$\overline{QR}$

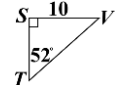
Opp Adj Hyp

Focus on $\angle Q$	
$m\angle R = 38^\circ$	$\overline{PQ} = 10$
$m\angle Q = 52^\circ$	$\overline{PR}$
$m\angle P = 90^\circ$	$\overline{QR}$

Adj Opp Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

6. 

Focus on $\angle T$	
$m\angle T = 38^\circ$	$\overline{ST}$
$m\angle S = 52^\circ$	$\overline{SV} = 10$
$m\angle V = 90^\circ$	$\overline{VT}$

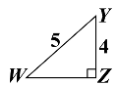
Adj Opp Hyp

Focus on $\angle V$	
$m\angle T = 38^\circ$	$\overline{ST}$
$m\angle S = 52^\circ$	$\overline{SV} = 10$
$m\angle V = 90^\circ$	$\overline{VT}$

Opp Adj Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

7. 

Focus on $\angle W$	
$\angle Y$	$\overline{WZ}$
$\angle W$	$\overline{YZ} = 4$
$m\angle Z = 90^\circ$	$\overline{WY} = 5$

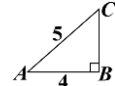
Adj Opp Hyp

Focus on $\angle Y$	
$\angle Y$	$\overline{WZ}$
$\angle W$	$\overline{YZ} = 4$
$m\angle Z = 90^\circ$	$\overline{WY} = 5$

Opp Adj Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

8. 

Focus on $\angle C$	
$\angle A$	$\overline{BC}$
$\angle C$	$\overline{AB} = 4$
$m\angle B = 90^\circ$	$\overline{AC} = 5$

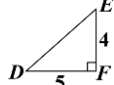
Adj Opp Hyp

Focus on $\angle A$	
$\angle A$	$\overline{BC}$
$\angle C$	$\overline{AB} = 4$
$m\angle B = 90^\circ$	$\overline{AC} = 5$

Opp Adj Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

9. 

Focus on $\angle E$	
$\angle D$	$\overline{EF} = 4$
$\angle E$	$\overline{DF} = 5$
$m\angle F = 90^\circ$	$\overline{DE}$

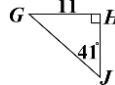
Adj Opp Hyp

Focus on $\angle D$	
$\angle D$	$\overline{EF} = 4$
$\angle E$	$\overline{DF} = 5$
$m\angle F = 90^\circ$	$\overline{DE}$

Opp Adj Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

10. 

Focus on $\angle J$	
$m\angle J = 41^\circ$	$\overline{GH} = 11$
$m\angle G = 49^\circ$	$\overline{JH}$
$m\angle H = 90^\circ$	$\overline{JG}$

Opp Adj Hyp

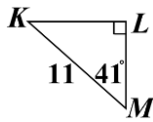
Focus on $\angle G$	
$m\angle J = 41^\circ$	$\overline{GH} = 11$
$m\angle G = 49^\circ$	$\overline{JH}$
$m\angle H = 90^\circ$	$\overline{JG}$

Adj Opp Hyp

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

$\sin = \frac{\text{Opp}}{\text{Hyp}}$     $\cos = \frac{\text{Adj}}{\text{Hyp}}$     $\tan = \frac{\text{Opp}}{\text{Adj}}$

11.



Focus on $\angle M$	
$m\angle M = 41^\circ$	$\overline{KL}$
$m\angle K = 49^\circ$	$\overline{ML}$
$m\angle L = 90^\circ$	$KM = 11$

Opp  
Adj  
Hyp

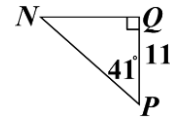
Focus on $\angle K$	
$m\angle M = 41^\circ$	$\overline{KL}$
$m\angle K = 49^\circ$	$\overline{ML}$
$m\angle L = 90^\circ$	$KM = 11$

Adj  
Opp  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

12.



Focus on $\angle P$	
$m\angle P = 41^\circ$	$\overline{NQ}$
$m\angle N = 49^\circ$	$QP = 11$
$m\angle Q = 90^\circ$	$\overline{NP}$

Opp  
Adj  
Hyp

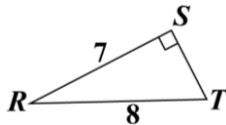
Focus on $\angle N$	
$m\angle P = 41^\circ$	$\overline{NQ}$
$m\angle N = 49^\circ$	$QP = 11$
$m\angle Q = 90^\circ$	$\overline{NP}$

Adj  
Opp  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

13.



Focus on $\angle R$	
$\angle R$	$\overline{ST}$
$\angle T$	$RS = 7$
$m\angle S = 90^\circ$	$RT = 8$

Opp  
Adj  
Hyp

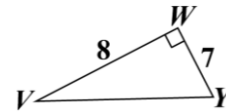
Focus on $\angle T$	
$\angle R$	$\overline{ST}$
$\angle T$	$RS = 7$
$m\angle S = 90^\circ$	$RT = 8$

Adj  
Opp  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

14.



Focus on $\angle Y$	
$\angle V$	$YW = 7$
$\angle Y$	$VW = 8$
$m\angle W = 90^\circ$	$\overline{VY}$

Adj  
Opp  
Hyp

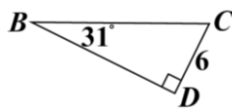
Focus on $\angle V$	
$\angle V$	$YW = 7$
$\angle Y$	$VW = 8$
$m\angle W = 90^\circ$	$\overline{VY}$

Opp  
Adj  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

15.



Focus on $\angle B$	
$m\angle B = 31^\circ$	$CD = 6$
$m\angle C = 59^\circ$	$\overline{BD}$
$m\angle D = 90^\circ$	$\overline{BC}$

Opp  
Adj  
Hyp

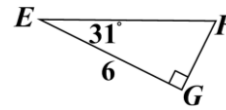
Focus on $\angle C$	
$m\angle B = 31^\circ$	$CD = 6$
$m\angle C = 59^\circ$	$\overline{BD}$
$m\angle D = 90^\circ$	$\overline{BC}$

Adj  
Opp  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

16.



Focus on $\angle E$	
$m\angle E = 31^\circ$	$\overline{FG}$
$m\angle F = 59^\circ$	$EG = 6$
$m\angle G = 90^\circ$	$\overline{EF}$

Opp  
Adj  
Hyp

Focus on $\angle F$	
$m\angle E = 31^\circ$	$\overline{FG}$
$m\angle F = 59^\circ$	$EG = 6$
$m\angle G = 90^\circ$	$\overline{EF}$

Adj  
Opp  
Hyp

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

$$\sin = \frac{\text{Opp}}{\text{Hyp}} \quad \cos = \frac{\text{Adj}}{\text{Hyp}} \quad \tan = \frac{\text{Opp}}{\text{Adj}}$$

**Creating Trigonometric Ratios Answers**

<p>1.</p> $\sin B = \frac{AC}{AB} \quad \cos B = \frac{BC}{AB}$ $\tan B = \frac{AC}{BC}$ $\sin(26) = \frac{2}{AB} \quad \cos(26) = \frac{BC}{AB}$ $\tan(26) = \frac{2}{BC}$	$\sin A = \frac{BC}{AB} \quad \cos A = \frac{AC}{AB}$ $\tan A = \frac{BC}{AC}$ $\sin(64) = \frac{BC}{AB} \quad \cos(64) = \frac{2}{AB}$ $\tan(64) = \frac{BC}{2}$	<p>2.</p> $\sin F = \frac{DE}{DF} \quad \cos F = \frac{EF}{DF}$ $\tan F = \frac{DE}{EF}$ $\sin(26) = \frac{DE}{DF} \quad \cos(26) = \frac{2}{DF}$ $\tan(26) = \frac{DE}{2}$	$\sin D = \frac{EF}{DF} \quad \cos D = \frac{DE}{DF}$ $\tan D = \frac{EF}{DE}$ $\sin(64) = \frac{2}{DF} \quad \cos(64) = \frac{DE}{DF}$ $\tan(64) = \frac{2}{DE}$
<p>3.</p> $\sin G = \frac{HK}{GH} \quad \cos G = \frac{GK}{GH}$ $\tan G = \frac{HK}{GK}$ $\sin(64) = \frac{HK}{2} \quad \cos(64) = \frac{GK}{2}$ $\tan(64) = \frac{HK}{GK}$	$\sin H = \frac{GK}{GH} \quad \cos H = \frac{HK}{GH}$ $\tan H = \frac{GK}{HK}$ $\sin(26) = \frac{GK}{2} \quad \cos(26) = \frac{HK}{2}$ $\tan(26) = \frac{GK}{HK}$	<p>4.</p> $\sin N = \frac{LM}{MN} \quad \cos N = \frac{LN}{MN}$ $\tan N = \frac{LM}{LN}$ $\sin(38) = \frac{LM}{10} \quad \cos(38) = \frac{LN}{10}$ $\tan(38) = \frac{LM}{LN}$	$\sin M = \frac{LN}{MN} \quad \cos M = \frac{LM}{MN}$ $\tan M = \frac{LN}{LM}$ $\sin(52) = \frac{LN}{10} \quad \cos(52) = \frac{LM}{10}$ $\tan(52) = \frac{LN}{LM}$
<p>5.</p> $\sin R = \frac{PQ}{QR} \quad \cos R = \frac{PR}{QR}$ $\tan R = \frac{PQ}{PR}$ $\sin(38) = \frac{10}{QR} \quad \cos(38) = \frac{PR}{QR}$ $\tan(38) = \frac{10}{PR}$	$\sin Q = \frac{PR}{QR} \quad \cos Q = \frac{PQ}{QR}$ $\tan Q = \frac{PR}{PQ}$ $\sin(52) = \frac{PR}{QR} \quad \cos(52) = \frac{10}{QR}$ $\tan(52) = \frac{PR}{10}$	<p>6.</p> $\sin T = \frac{SV}{VT} \quad \cos T = \frac{ST}{VT}$ $\tan T = \frac{SV}{ST}$ $\sin(52) = \frac{10}{VT} \quad \cos(52) = \frac{ST}{VT}$ $\tan(52) = \frac{10}{ST}$	$\sin V = \frac{ST}{VT} \quad \cos V = \frac{SV}{VT}$ $\tan V = \frac{ST}{SV}$ $\sin(38) = \frac{ST}{VT} \quad \cos(38) = \frac{10}{VT}$ $\tan(38) = \frac{ST}{10}$
<p>7.</p> $\sin W = \frac{YZ}{WY} \quad \cos W = \frac{WZ}{WY}$ $\tan W = \frac{YZ}{WZ}$ $\sin W = \frac{4}{5} \quad \cos W = \frac{WZ}{5}$ $\tan W = \frac{4}{WZ}$	$\sin Y = \frac{WZ}{WY} \quad \cos Y = \frac{YZ}{WY}$ $\tan Y = \frac{WZ}{YZ}$ $\sin Y = \frac{WZ}{5} \quad \cos Y = \frac{4}{5}$ $\tan Y = \frac{WZ}{4}$	<p>8.</p> $\sin C = \frac{AB}{AC} \quad \cos C = \frac{BC}{AC}$ $\tan C = \frac{AB}{BC}$ $\sin C = \frac{4}{5} \quad \cos C = \frac{BC}{5}$ $\tan C = \frac{4}{BC}$	$\sin A = \frac{BC}{AC} \quad \cos A = \frac{AB}{AC}$ $\tan A = \frac{BC}{AB}$ $\sin A = \frac{BC}{5} \quad \cos A = \frac{4}{5}$ $\tan A = \frac{BC}{4}$
<p>9.</p> $\sin E = \frac{DF}{DE} \quad \cos E = \frac{EF}{DE}$ $\tan E = \frac{DF}{EF}$ $\sin E = \frac{5}{DE} \quad \cos E = \frac{4}{DE}$ $\tan E = \frac{5}{4}$	$\sin D = \frac{EF}{DE} \quad \cos D = \frac{DF}{DE}$ $\tan D = \frac{EF}{DF}$ $\sin D = \frac{4}{DE} \quad \cos D = \frac{5}{DE}$ $\tan D = \frac{4}{5}$	<p>10.</p> $\sin J = \frac{GH}{JG} \quad \cos J = \frac{JH}{JG}$ $\tan J = \frac{GH}{JH}$ $\sin(41) = \frac{11}{JG} \quad \cos(41) = \frac{JH}{JG}$ $\tan(41) = \frac{11}{JH}$	$\sin G = \frac{JH}{JG} \quad \cos G = \frac{GH}{JG}$ $\tan G = \frac{JH}{GH}$ $\sin(49) = \frac{JH}{JG} \quad \cos(49) = \frac{11}{JG}$ $\tan(49) = \frac{JH}{11}$
<p>11.</p> $\sin M = \frac{KL}{KM} \quad \cos M = \frac{ML}{KM}$ $\tan M = \frac{KL}{ML}$ $\sin(41) = \frac{KL}{11} \quad \cos(41) = \frac{ML}{11}$ $\tan(41) = \frac{KL}{ML}$	$\sin K = \frac{ML}{KL} \quad \cos K = \frac{KL}{KM}$ $\tan K = \frac{ML}{KL}$ $\sin(49) = \frac{ML}{11} \quad \cos(49) = \frac{KL}{11}$ $\tan(49) = \frac{ML}{KL}$	<p>12.</p> $\sin P = \frac{NQ}{NP} \quad \cos P = \frac{QP}{NP}$ $\tan P = \frac{NQ}{QP}$ $\sin(41) = \frac{NQ}{NP} \quad \cos(41) = \frac{11}{NP}$ $\tan(41) = \frac{NQ}{11}$	$\sin N = \frac{QP}{NP} \quad \cos N = \frac{NQ}{NP}$ $\tan N = \frac{QP}{NQ}$ $\sin(49) = \frac{11}{NP} \quad \cos(49) = \frac{NQ}{NP}$ $\tan(49) = \frac{11}{NQ}$
<p>13.</p> $\sin R = \frac{ST}{RT} \quad \cos R = \frac{RS}{RT}$ $\tan R = \frac{ST}{RS}$ $\sin R = \frac{ST}{8} \quad \cos R = \frac{7}{8}$ $\tan R = \frac{ST}{7}$	$\sin T = \frac{RS}{RT} \quad \cos T = \frac{ST}{RT}$ $\tan T = \frac{RS}{ST}$ $\sin T = \frac{7}{8} \quad \cos T = \frac{ST}{8}$ $\tan T = \frac{7}{ST}$	<p>14.</p> $\sin Y = \frac{VW}{VY} \quad \cos Y = \frac{YW}{VY}$ $\tan Y = \frac{VW}{YW}$ $\sin Y = \frac{8}{VY} \quad \cos Y = \frac{7}{VY}$ $\tan Y = \frac{8}{7}$	$\sin V = \frac{YW}{VY} \quad \cos V = \frac{VW}{VY}$ $\tan V = \frac{YW}{VW}$ $\sin V = \frac{7}{VY} \quad \cos V = \frac{8}{VY}$ $\tan V = \frac{7}{8}$
<p>15.</p> $\sin B = \frac{CD}{BC} \quad \cos B = \frac{BD}{BC}$ $\tan B = \frac{CD}{BD}$ $\sin(31) = \frac{6}{BC} \quad \cos(31) = \frac{BD}{BC}$ $\tan(31) = \frac{6}{BD}$	$\sin C = \frac{BD}{BC} \quad \cos C = \frac{CD}{BC}$ $\tan C = \frac{BD}{CD}$ $\sin(59) = \frac{BD}{BC} \quad \cos(59) = \frac{6}{BC}$ $\tan(59) = \frac{BD}{6}$	<p>16.</p> $\sin E = \frac{FG}{EF} \quad \cos E = \frac{EG}{EF}$ $\tan E = \frac{FG}{EG}$ $\sin(31) = \frac{FG}{EF} \quad \cos(31) = \frac{6}{EF}$ $\tan(31) = \frac{FG}{6}$	$\sin F = \frac{EG}{EF} \quad \cos F = \frac{FG}{EF}$ $\tan F = \frac{EG}{FG}$ $\sin(59) = \frac{6}{EF} \quad \cos(59) = \frac{FG}{EF}$ $\tan(59) = \frac{6}{FG}$